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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/147,914

05/25/1999

AHARON MEIR EYAL

U-012130-1

2425

140

7590

03/14/2007

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EXAMINER

OH, TAYLOR V

ART UNIT

PAPER NUMBER

1625

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/147,914

Applicant(s)

EYAL ET AL.

Examiner

Taylor Victor Oh

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. 2/7/07.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/22/07 has been entered.

The Status of Claims

Claims 37-68 are pending.

Claims 37-68 are rejected.

The interview summary

The examiner and applicants' representative agreed on the proposing amendment on 2/7/07 in order to expedite the prosecution of the application in the near future in the following: in claim 37, the phrase "consisting of" will be added in front of "an acid or an acidic salt" in order for the application to be in a possible condition of allowance in the absence of other issues.

DETAILED ACTION

Priority

1. It is noted that this application is a 371 of PCT/US97/17774 (10/02/1997), which has a foreign priority document (Israel 119389) filed on 10/09/1996.

Drawings

2. None .

Claim Rejections - 35 USC § 103

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1625

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 37-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Powell et al (US 3,202,705) in view of Walkup et al (U 5,252,473).

Art Unit: 1625

Powell et al teaches a process for producing lactic acid from the fermentation liquors and its purification by means of ion exchange in the following example (see from

Example 1

A fermentation process liquor containing lactic acid was prepared in conventional manner. The liquor was heated to 180° F. and held at that temperature for about one hour. After that period of time the heating was stopped and the liquor was filtered and was subjected to a carbon bleach in conventional manner by addition of carbon granules. Then the carbon granules were removed from the liquor by filtration. The liquor was then acidified with sulfuric acid and the precipitated calcium sulfate was removed by filtration. Water was evaporated off under vacuum until the concentration of lactic acid in the liquor reached 80% by weight. The liquor was then poured into the top of a glass column 30 inches high which contained 40.6 cubic inches of a porous sulfonated polystyrene cation exchange resin regenerated on the hydrogen cycle. The rate of percolation through the resin averaged 1500 grams of liquor per hour. After 6000 grams of lactic acid passed through the column, the concentration of amino acids in the effluent began to rise rapidly from less than 0.01% by weight and no further process liquor was added to the column. The column was then washed with water until 0.25% lactic acid by weight remained in the rinse water. 1000 ml. of 5% aqueous sodium hydroxide solution was then passed through the column at a rate of 30 ml. per minute. Then water as passed through the column until all residual alkali was washed away. Water was then forced up through the bottom of the column at a rate of 30 to 35 ml. per minute until 1000 to 1500 ml. had been passed through. Then 1000 ml. of a 7½% aqueous hydrochloric acid solution was poured down through the column followed by 500 ml. of water, both at the rate of 30 ml. per minute.

col. 5 ,line 22 to col. 6, line 3):

However, a cation and an anion exchanger can be either liquid or solid exchangers, the hydrolysis is conducted at a temperature higher than 80° C in a CO₂ containing atmosphere, the second product is used as a neutralizing agent in fermentation, and the recovery of the lactic acid is conducted by using the distillation.

Walkup et al teaches a process of producing lactic acid and esters of lactic acid in the following reactions:

In the first reaction, ammonium lactate produced by a fermentation process of carbohydrate materials (see col. 3 , lines 37-40) may be decomposed into NH_3 which can be used for controlling pH in the fermentation (see col. 2 ,lines 6-8) and lactic acid (see col. 6 ,line 5); in addition, purified lactic acid is produced from the CO_2 catalysis of ammonium lactate and alcohol solution in the presence of an acidic ion exchange resin at a temperature in the range of 100 to 150⁰ C (see col. 14, lines 26-40); also, a simple distillation is recommended to purify the desired product (see col. 14 ,lines 53-57).

With respect to the use of the liquid or solid cation and anion exchangers, there is little difference between the use of either the solid or liquid ion exchangers since they are well-known in the art. Therefore, it would have been obvious to the skilled artisan in the art to be motivated to use the liquid ion exchanger as an alternative to the solid ion exchanger or vice-versa depending on the skilled artisan's intention.

Powell et al expressly teaches the process for producing lactic acid from the fermentation liquors and its purification by means of cation exchange resin; similarly, Walkup et al teaches that the purified lactic acid is produced from the CO_2 catalysis of ammonium lactate and alcohol solution in the presence of an acidic ion exchange resin

Art Unit: 1625


along with the application of the simple distillation. Both prior art are commonly involved in the production of lactic acid. Therefore, if the skilled artisan in the art had desired to develop the purification of lactic acid involved in the hydrolysis in the presence of CO₂ by using the distillation, it would have been obvious to the skilled artisan in the art to be motivated to use Powell's et al cation exchanger in combination with Walkup's et al hydrolysis and distillation in order to increase the efficiency of the overall process. This is because the skilled artisan in the art would expect such combinations to be successful as taught in the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas McKenzie can be reached on 571-272-0670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1625

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Taylor Victor Oh, MSD, LAC
Primary Examiner
Art Unit : 1625

3/13/07